

**UGS BOARD MEETING**  
**Department of Natural Resources**  
**Utah Geological Survey, Utah Core Research Center**  
**240 N. Redwood Road, Salt Lake City**  
**Wednesday, August 11, 2021**

The meeting of the UGS Board was called to order at 8:32 a.m.

**ATTENDANCE**

**Board members:** Elissa Richards – Chair, Ken Fleck – Vice-Chair, Marc Eckels, Sam Quigley, David Garbrecht, Tom Faddies, and Rick Chesnut. We were also joined by soon to be Board Members, Riley Brinkerhoff and Becky Hammond. Pete Kilbourne was not in attendance.

**UGS Staff:** Bill Keach, Mike Hylland, Jodi Patterson, Cheryl Gustin, Steve Bowman, Jay Hill, Hollie Brown, Brennan Young, Deanne Morgan, Jackson Smith, Torri Duncan and Mark Milligan made a brief appearance. Tyler Knudsen, Jessica Castleton, and Ben Erickson attended at the end to give presentations.

**APPROVAL OF MINUTES**

Mark Eckels motioned to approve the minutes of the April 14, 2021, UGS Board meeting. Rick Chesnut seconded the motion. The Board voted, and the motion carried.

**ACTION ITEM**

Although contract proposals for external funding are provisionally approved by the Board by email, they require formal approval at the next Board meeting. The proposals are:

*CCUS at Iron Mountain;* funding from New Mexico Tech (via DOE); new funding to the UGS \$192,000; total project funding \$1,152,500 all participants); estimated start date 7/1/2021; estimated end date 6/30/2024.

*Utah Geothermal Resource Overview Publication;* funding from the Utah Office of Energy Development; new funding to the UGS \$25,000; total project funding \$30,000; estimated start date 7/1/2021; estimated end date 6/30/2022.

*2020 Magna Earthquake Delineation of Subsurface Geologic Structures;* funding from the USGS; new funding to the UGS \$34,398; total project funding \$49,139; estimated start date 7/1/2022; estimated end date 6/30/2023.

*Tule & Snake Valleys Hydrologic Monitoring;* funding from the Utah Watershed Restoration Initiative; new funding to the UGS \$20,000; total project funding \$20,000; estimated start date 7/1/2021; estimated end date 6/30/2023.

*Hydrologic Monitoring of Environmental Restoration Projects – Year 6;* funding from the Utah Watershed Restoration Initiative; new funding to the UGS \$175,000; total project funding \$233,333; estimated start date 7/1/2021; estimated end date 6/30/2022.

*Supplementing Estimates of Evapotranspiration: The Utah Flux Network*; funding from the U.S. Bureau of Reclamation; new funding to the UGS \$140,118; total project funding \$280,235; estimated start date 10/1/2021; estimated end date 09/30/2023.

*Wetland Water Budget & Wetland Change Analysis for the Nature Conservancy's Great Salt Lake Shorelands Preserve*; funding from the Division of Forestry, Fire, State Lands; new funding to the UGS \$74,554; total project funding \$135,103; estimated start date 7/1/2021; estimated end date 6/30/2023.

*The Influence of Altered Irrigation Practices on Soil Moisture & Evapotranspiration*; funding from the Central Utah Water Conservancy District; new funding to the UGS \$154,588; total project funding \$250,847; estimated start date 7/1/2021; estimated end date 6/30/2025.

*Digital Scanning, Conversion, & Data Preservation of NASA Products*; funding from NASA, Alaska Satellite Facility; new funding to the UGS \$164,322; total project funding \$164,322; estimated start date 7/1/2021; estimated end date 12/31/2022.

*FY23 West Valley Fault Zone Trenching*; funding from the USGS; new funding to the UGS \$54,373; total project funding \$108,747; estimated start date 7/1/2022; estimated end date 6/30/2023.

*New Edition of Putting Down Roots*; funding from the USGS; new funding to the UGS \$32,544; total project funding \$32,544; estimated start date 5/1/2021; estimated end date 9/30/2021.

Mark Eckels motioned to formally approve the project proposals. Dave Garbrecht seconded the motion. The Board voted, and the motion carried.

## **Director's Report:**

### **COVID-19 update**

COVID-19 continues to impact UGS staff, the majority of whom continue to work from home. For the most part, fieldwork has also resumed with an increased focus on personal safety. Partnering agencies have also implemented their own safety protocols which require additional coordination efforts. The State of Utah has set forth several guidelines which are closely followed by management and staff.

Back to the office plans are still a work in progress. Once back, we anticipate a blend of work, occurring both in the office and remotely.

### **Personnel Changes**

#### *Retirements:*

Gordon Douglass, GIS Manager retired June 1.

The job posting for his replacement recently closed and interviews are being held August 11th, 12th, and 16th.

Potential for 2 to 3 retirements next year.

*Other changes:*

Peter Nielsen – UCRC curator, has transferred to the Division of Oil, Gas and Mining.

An active recruitment is underway to replace Peter.

Public Information Officer (PIO) – Hollie Brown of OGM has now assumed these responsibilities.

Brian Butler and Gentry Hammerschmid, DNR Bookstore manager and assistant manager, respectively, resigned in the last several months.

Jackson Smith, the new bookstore manager, started on August 3. Torri Duncan, the new assistant bookstore manager, started August 11.

Temporary positions – Several Geological Technicians and GIS Analysts have been hired in recent months.

Mapping – DeAnne Morgan, Brooklyn Smout, and Brennan Young

Energy and Minerals – Kayla Smith

**Recent activities – Looking forward**

*Energy and Minerals –*

The UGS is seeing increased interest in projects relating to geothermal, critical minerals and carbon capture, utilization, and sequestration (CCUS). Inquiries for information and possible projects have come from both the private and public sectors.

The minerals group continues to work on several critical mineral related projects such as mapping at Gold Hill. Work is nearing completion on vanadium exploration in southeastern Utah and uranium data preservation activities.

The Southern Utah Wilderness Alliance issued a GRAMA request in late July for work done in late 2020 by the UGS on understanding the potential impacts of a pause or stoppage of leases on federal lands. Mike Vanden Berg and the UGS wrote a document titled **Internal Fact Sheet: Possible Restrictions to Oil and Gas Drilling on Federal Lands in Utah**. Following the Executive Orders issued in late January 2021, this document was shared with several state agencies.

The specific request states:

“Any and all records related to Section 208, *Oil and Natural Gas Development on Public Lands and in Offshore Waters*, of Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, 86 Fed. Reg. 7619, 7624-25 (Feb. 1, 2021). Stated differently, any and all records related to Executive Order 14008, Section 208’s directive to “pause new oil and natural gas leases on public lands . . . pending completion of a comprehensive review and reconsideration of Federal oil and gas permitting and leasing practices in light of the Secretary of the Interior’s broad stewardship responsibilities over the public lands . . . including potential climate and other impacts associated with oil and gas activities on public lands[.]”

The UGS complied with the GRAMA request by digitally delivering all requested materials.

#### *Geologic Hazards –*

The Geologic Hazards Program recently completed detailed mapping of Quaternary faults in the Bear Lake area (East and West Cache fault zones), Tooele Valley (Oquirrh fault zone and others), and Rush Valley (Topliff Hills fault zone and others). Fault traces and designated special study areas are available in the Utah Geologic Hazards Portal (<https://geology.utah.gov/apps/hazards/>). Mapping is currently being finalized for the Sevier/Toroweap, Hurricane, and Washington fault zones in southwestern Utah.

New 1:24,000-scale geologic mapping of Bryce Canyon National Park and vicinity was delivered to the park and comprehensive geologic hazard maps are now being created.

Zion National Park requested UGS assistance following recent flooding and debris flows in the park. Jessica Castleton will speak to this later in the meeting.

The legislature, in House Bill 45, tasked the DNR-UGS with generating a report that recommends ways to increase public awareness about risks of radon and ways to mitigate resident's exposure to radon. Final report is to be provided during or before the first interim meeting of 2022.

#### *Groundwater & Wetlands–*

The Groundwater and Wetlands Program is experiencing unprecedented demand for projects along with success in obtaining outside funding. We have added three excellent colleagues during the past 15 months with two more coming to the wetlands group this fall and possibly one or two to the groundwater section this coming winter and spring. We are scrambling to finish current projects while starting new ones and Diane and Hugh are nearly overwhelmed by administrative work - in Hugh's case to the detriment of important project work in the watersheds and Snake Valley. We are keeping pace with applications of advanced technology and methods to quantify a wide array of water-related issues—particularly eddy covariance flux towers and analysis of satellite imagery.

The expected GRAMA request for water quality studies in the Bryce Canyon area came instead as a subpoena. The completed studies were delivered through the Attorney General's office to Bryce Canyon City. The underlying issue is the need for water use permits and septic tanks for anticipated commercial development in the area. This work will provide scientific data to those making critical decisions.

The Wetlands Section continues to scope projects to study the Matheson Wetlands (Moab area) and Great Salt Lake Shorelands Preserves.

The Groundwater and Wetlands Program will be a focus area for FY22-23 building block requests.

## *Mapping & Paleontology –*

### Mapping

Work is finishing up on the biggest STATEMAP related grants we have ever had, a total workload of \$1,009,835. Because of the size of these awards, we necessarily had to enlist help from other UGS programs. We are now struggling to complete all these projects and spend out the funds (too many non-grant-funded demands on people's time). Temporary GIS staff were hired to help complete the project.

STATEMAP funding for FY22 has been set at \$574,456 (a total project of \$1,148,912). This funding allows the Geologic Mapping Program to expand our key goals—detailed 1:24,000-scale mapping of high growth, development, resource, and other high-priority areas, and regional 1:62,500–100,000-scale mapping for resources, land management, and research across the entire state, emphasizing better accuracy, better precision, more detail, and updating the old maps. Some of the funds come tied to new tasks—training staff, developing new procedures, contributing to the national geologic map database, converting old and new maps into a new national geologic map schema called GeMS, and developing three-dimensional map products. All these new projects, tasks, and objectives have presented us with many challenges, including finding the match for the 50:50 funding, adding and training staff, completing and reviewing more maps, and developing new procedures.

### Paleontology

The Paleontology Section continues to be busy. New donations will ensure that work continues on the *Utahraptor* Megablock for at least the next 12 months.

## *Geologic Information & Outreach –*

Several significant changes in the past few months.

Mark Milligan, Program Manager, has also been fulfilling the PIO responsibilities. In July, we began utilizing Hollie Brown who is the PIO for OGM. She is already actively engaged in the UGS.

The UGS contracted with an outside firm to produce a promotional video for the UGS. This video will be featured at the annual GSA convention in October.

The Web Services Section inside of GIO has been moved out as a separate program with Marshall Robinson leading the team. It will be known as the Data Management and Services (DMS) Program. It is responsible for developing technical solutions for UGS's flow of data from the field to the public. The UGS is collecting and sharing much more data in a digital format than ever before. More technical help is necessary to make sure that the data are collected, stored, and delivered in a secure, highly compatible, and efficient manner. The new UGS GIS Manager will be hired into this new group. Much of UGS data are in GIS format to display it in a user-friendly interactive map. We are also hoping to start testing Google Cloud Platform services to begin storing and analyzing larger datasets and begin relating them to other datasets so that we can begin creating better derivative maps. These steps are going to be crucial for the UGS to start doing more 3D modelling and analysis.

DMS will continue to be responsible for the UGS website and is 75% complete with doing a complete redesign. Currently we are waiting for final reviews for the Energy & Minerals and Popular Geology sections of the website.

Bookstore staffing has changed. Both the manager and assistant manager resigned. New personnel have been hired. The bookstore continues to be open for walk-in business from 10 am to 5 pm. Masks are recommended, and social distancing is prioritized. We will continue the COVID-19 protocols for the foreseeable future.

The UGS Library has been and continues to be open by appointment only due to COVID-19. We have continued to serve patrons, mostly with digital versions of our publications. Similar to our main website traffic, earthquake and fault-related publications were accessed often, as were geologic maps. However, library patrons tend to use more technical publications as compared to our main website traffic.

*Cedar City office –*

See the separate report from Tyler and Lance

### **Funding and budget –**

The State of Utah weathered well the economic challenges related to the COVID-19 pandemic. The economic challenges of the past year underscore the need for the UGS to obtain stable resources to ensure the UGS can continue providing critical services to the State of Utah.

UGS leadership continues to believe that Mineral Lease funds are not a sustainable, reliable funding source for core operating expenses. To that end the UGS has sought the stability of state General Funds to maintain core services and seeks to use Mineral Lease funds as a mechanism to balance fluctuations in outside funding, while still maintaining the mineral-related objectives tied to Mineral Lease funds.

At the UGS we are actively pursuing other funding options to maintain services to the State at current levels.

Senator Hinkins introduced Senate Bill 133 to create new restricted accounts, one of which is for the UGS. The bill was passed by the 2021 legislature. The bill sets aside a certain percentage of oil, gas and mining severance taxes to be deposited into a restricted account for the UGS. The amount set aside is as follows:

- (i) 2.5% of the first \$50,000,000 of the average aggregate annual revenue;
- (ii) 1% of the next \$50,000,000 of the average aggregate annual revenue; and
- (iii) .5% of the average aggregate annual revenue that exceeds \$100,000,000.

Though enacted with good intention, language in the bill states that the severance tax revenues “*appropriated from the restricted accounts **offset and supplant General Fund** appropriations used to pay the costs of programs or projects administered by the state agencies that are primarily related to oil, gas, and mining.*”

In the final funding bill, General Funds were replaced with the anticipated Severance Tax funds.

SB 133 does not replace the loss of Mineral Lease revenues.

### Financial Update –

The onset of FY21 was an excruciating challenge with all the unknowns related to the pandemic. In the end we were able to accomplish most of our goals. We will carry our full authority of \$506,000 of non-lapse funds into FY22. We will lapse \$158,832 back to the General Fund.

The final Mineral Lease revenue to the UGS was slightly less than the pre-COVID-19 forecast of \$1.1 million, coming in at \$1,000,953, a significant increase over our early pandemic forecast that it could be as low as \$400,000. This is a significant turnaround yet another testament to the volatility of Mineral Lease.

In FY21, we used \$270,800 of one-time funds for maintenance catch-up and replacement of aging or non-functional equipment. Significant improvements were made to the updating of equipment and facilities. Nearly all the lighting in the core center was replaced in the last quarter. The rooms are brighter and better suited for training and research. Audio and visual equipment were also upgraded to better facilitate virtual meetings and cooperative interactions. The *Wattsmart* program from Rocky Mountain Power led to significant savings on the equipment. The LED lights will reduce our monthly electricity costs. We forecast that the cost to update will payout in a little over two years. Installation of new shelving for the UCRC has been completed. The new shelving spans the center aisles.

We also used ~ \$109,200 FY21 on-going funds (~\$160,600 FY22 full fiscal year costs) to give 30 employees promotions and/or Administrative Salary Increases that were years overdue.

Summary of revenue types, expenditures by program, and expenditures by category.

#### RNAA DNR UTAH GEOLOGICAL SURVEY FY 2021 CLOSE-OUT SUMMARY

<b>Fixed State Funding</b>		<b>Expenditures by Program</b>	
<b>General Funds</b>	\$ 5,542,600	Administration	\$ 791,066 9.69%
<b>FY20 Non-lapse</b>	\$ 50,000	Bonneville Salt Flats	\$ 2,352 0.03%
<b>Bonneville Salt Flats Restoration</b>	\$ 1,000,000	Geologic Hazards	\$ 1,216,548 14.89%
<b>Great Salt Lake Groundwater Studies</b>	\$ 750,000	UGS Board	\$ - 0.00%
<b>Mineral Lease</b>	\$ 1,000,953	Geologic Mapping & Paleontology	\$ 1,361,963 16.67%
Land Exchange Distribution Account	\$ 11,503	Energy & Mineral Resources	\$ 1,668,931 20.43%
	<u>\$ 8,355,056</u>	Groundwater	\$ 1,313,931 16.09%
<b>Revenue Collected</b>		Groundwater - Great Salt Lake	\$ - 0.00%
Federal Funds	\$ 1,085,627	Geologic Information & Outreach	\$ 1,813,094 22.20%
Dedicated Credits	\$ 255,704		<u>\$ 8,167,886 100.00%</u>
Transfers	\$ 883,978		
	<u>\$ 2,225,310</u>	<b>Expenditures by Category</b>	
		Personnel	\$ 6,951,196 85.10%
Total Revenue	<u>\$ 10,580,366</u>	In-State Travel	\$ 38,691 0.47%
		Out-of-State Travel	\$ 5,112 0.06%
Total Expenditures	<u>\$ 8,167,886</u>	Current Expense	\$ 615,021 7.53%
		Data Processing Current Expense	\$ 299,611 3.67%
Unexpended Balance	<u>\$ 2,412,480</u>	Capital Expenditure	\$ 141,644 1.73%
		Other/Pass-Through	\$ 116,611 1.43%
			<u>\$ 8,167,886 100.00%</u>
Lapse (amount above non-lapse authority)	\$ (158,832)		
Non-lapse Bonneville Salt Flats	\$ (997,648)		
Non-lapse UGS to FY22	\$ (506,000)		
Non-lapse Great Salt Lake funds for USGS	\$ (750,000)		
	<u>\$ (2,412,480)</u>		

## **Updated Handbook for UGS Board Members**

In anticipation of new members joining the UGS Board in 2021, Mike Hylland updated the Handbook for Members of the Utah Geological Survey Board. The updates include replacing out-of-date information, improving consistency and organization throughout the document, and correcting grammatical and typographical errors. The updated handbook is included in the materials packet for this meeting. New and continuing board members alike are encouraged to familiarize themselves with the contents of the updated handbook.

## **Administrative Rule R638-1**

In the process of completing the required 5-year review of Administrative Rule R638-1, Acceptance and Maintenance of Confidential Information, Mike Hylland discovered updates that needed to be made to the rule text. In the course of working with the Office of Administrative Rules (OAR) and the Governor's Office of Planning and Budget, it became apparent that the rule also needed some revision to make it conformable with the OAR's Rulewriting Manual.

A copy of the rule analysis is included in the materials packet for this meeting, per Utah Governor's Executive Order EO/013/2011. In particular, the analysis addresses potential direct or indirect fiscal impacts to state government, local government, small business, and persons other than small businesses, businesses, or local governmental entities. As stated in the rule (Subsection R638-1-5(1)), "this rule applies to geoscience information provided voluntarily by individuals or organizations to the Survey. Therefore, sources of information have no mandated costs in order to comply with these provisions." And as stated in Subsection R638-1-5(2), "the Survey will allocate sufficient funds from its operating budget to accomplish the purposes and objectives of this rule." Therefore, implementation of the rule originally had no fiscal impacts of any kind, and the revisions have no effect on implementation of the rule, so the revised rule will have no fiscal impacts.

## **Legislative Update –**

Currently working with a few legislators on earthquake and URM related issues.

## **Staff Presentations –**

Tyler Knudsen presented an overview of possible stops for the Fall Board Field Trip

Jessica Castleton and Ben Erickson presented a Geologic Hazards Program update on Zion National Park.

## **Crawford Award - Board Member Considerations**

Two new nominations this year and one from last year:



UGA Geology of the Intermountain West—*The Morrison Formation and its bounding strata on the western side of the Blanding basin, San Juan County, Utah*, by James I. Kirkland, Donald D. DeBlieux, ReBecca K. Hunt-Foster, John R. Foster, Kelli Trujillo, Emily Finzel;

UGS Circular 129—*Critical Minerals of Utah*, by Stephanie Mills and Andrew Rupke.

UGS Miscellaneous Publication 169—*Geothermal Characteristics of the Roosevelt Hot Springs System and Adjacent FORGE EGS Site, Milford, Utah*, Rick Allis and Joe Moore, editors.

Sam Quigley motioned to adjourn the meeting. Rick Chesnut seconded the motion. Board voted and the meeting was adjourned at 12:00 pm.